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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Hartmut Benckert

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PATENT CENTRAL LLC

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EXAMINER

SRIRAMAN, NIKHIL

ART UNIT

PAPER NUMBER

3664

MAIL DATE

DELIVERY MODE

05/21/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/523,083	Applicant(s) BENCKERT ET AL.	
	Examiner NIKHIL SRIRAMAN	Art Unit 3664	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 February 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21-42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 21-42 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This final office action is in response to communications filed by Applicant on February 9, 2009. The amendment with respect to claims 21, 23-24, 26-27, 32-33, 36-37 and 42 have been received and entered. Therefore, claims 21-42 remain pending and have been considered below.

Response to Arguments

1. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection. Note the reference Rau used in this Action (6,883,532 B2) is distinct from the Rau used in the foregoing action (US 2004/0076503 A1). Further, the statutory basis under which the art rejections were made are now different. Accordingly, the grounds of rejection in the instant action are new and distinct from the rejection of the previous office action.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 29-32 and 39-42 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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Regarding claim 29, lines 1-3 recite "wherein a software routine (78) responsive to dynamic angle measurement values (α_{iv}) for the dividing thereof into low frequency and high frequency angle measurement value components".

The terms "dynamic" and "frequency" modify the terms "angle measurement". One interpretation is that the angle is dynamic and the frequency measured is the angular rotational frequency. Another interpretation is that the measurement is dynamic and the frequency is that of the measurements, i.e. how often the angle is measured. Yet a third interpretation is that the "frequency" pertains to the electrical signal and filtration of noise. Given the very different meanings, in the absence of additional clarifying language the ambiguity found therein results in an indefinite claim scope.

Regarding claim 30, line 2 recites "the stationary or low frequency component". Despite the antecedent basis indicating otherwise, this term is not previously introduced earlier in the claim or in claim 28, upon which claim 30 depends. However, the term is introduced in claim 29 which, coupled with the antecedent basis, suggests dependency of claim 30 was intended to be upon claim 29. Therefore, the uncertainty regarding the claim dependency chain results in an independent scope.

Regarding claim 39, see claim 29 above.

Regarding claim 40, see claim 30 above.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 21-22 and 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rau (6,883,532).

Regarding claim 21, Rau discloses a large manipulator with an articulated mast (Fig. 2), which is linked to a mast base (Fig. 2, item 21) rotatable about a vertical axis (Fig. 2, item 13) on a chassis (Fig. 2, item 11), the articulated mast having one end connected to the mast base with the other end being a free end ending in a mast tip (Fig. 2, item 33), the large manipulator comprising

at least three mast arms (Fig 2, items 23-27) limitedly pivotable about respectively parallel horizontal articulation axis relative to the mast base or an adjacent mast arm (Fig 2, items 23-27) via a respective drive unit (Fig. 3, items 34-38),

a control unit for actuating the drive units for mast movement, the control unit including a coordinate transformer that responds to guiding parameters for the mast tip or for an end hose located thereon, and to measured angular values that are determined by means of angle sensors on the mast arm for translation into articulation

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axis referenced movement signals for the drive units in accordance with predefined path/slew characteristics (Col. 4, lines 28-55),

wherein a geodetic angle sensor which determine earth referenced angular values of the individual mast arms is disposed in a rigid manner on the mast arms (Col. 5, lines 27-45) and

wherein the coordinate transformer is acted upon by the measured angular values of the geodetic angle sensors (Col. 5, lines 27-45).

Rau fails to disclose more than one sensor.

However, it would have been obvious one having ordinary skill in the art at the time of invention to modify Rau to take the sensor it discloses on a mast arm and place the same sensor on another mast arm since it has been held that the mere duplication of the essential working parts of a device (*Regis Paper Co. v. Bemis Co.*, 193 USPQ 8) and the rearranging of parts of an invention (*In re Japikse*, 86 USPQ 70) involves only routine skill in the art.

Regarding claim 22, Rau further discloses the system above wherein the guiding parameters for the mast tip or for an end hose are provided in a chassis-referenced coordinate system (Col. 4, lines 27-55; Col. 5, lines 28-45).

Regarding claim 25, Rau further discloses the system above, wherein the geodetic angle sensors are tilt angle sensors responsive to the gravity of the earth (Col. 5, lines 28-45).

In the alternative if the actual inclination sensors are construed as other than tilt angle sensors response to the gravity of the earth, it would have been obvious to modify the sensor as such as a common substitution of parts.

Regarding claim 26, Rau further discloses wherein the coordinate transformer includes a software routine for conversion of earth referenced mast arm base angle values into articulation angles (Col. 4, lines 28-55 and Col. 5, lines 28-45).

Regarding claim 27, Rau further discloses wherein the coordinate transformer includes a software routine for translating earth referenced mast arm base angle values into chassis referenced cylinder coordinates for the mast tip or the end hose (Col. 4, lines 28-55 and Col. 5, lines 28-45).

6. Claims 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rau (6,883,532) in view of Zhou et al. (6,341,665 B1).

Regarding claims 23 and 24, Rau fails to disclose, but Zhou et al. discloses wherein in addition a geodetic angle sensor is provided on the mast base for measurement of an earth referenced angle value associated with the mast base and chassis respectively (Col. 6, lines 29-41) in order to stabilize the position of the boom tip (Col. 1, lines 25-52).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to modify the articulated mast system as disclosed by Rau by adding a sensor on the mast base and chassis in order to stabilize the position of the boom tip (Zhou et al.; Col. 1, lines 25-52).

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7. Claims 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rau (6,883,532) in view of Katsusuke (5,363,304).

Regarding claim 28, Rau fails to disclose, but Katsusuke discloses wherein the coordinate transformer includes a software routine (Fig. 1) for conversion of the guide or command value into guide articulation angles in accordance with a predetermined path/slew characteristic of the articulated mast (Col. 3, lines 5-60) in order to provide an efficient and non-cumbersome way of controlling a mast with multiple degrees of freedom (Col. 1, lines 55-60).

Therefore it would have been obvious to combine the articulated mass system as disclosed by Rau to include the software routine as disclosed by Katsusuke in order to provide an efficient and non-cumbersome way of controlling a mast with multiple degrees of freedom (Col. 1, lines 55-60).

8. Claims 33, 34 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rau (6,883,532) in view of Kleffner (2001/0045032).

Regarding claim 33, Rau discloses a large manipulator with an articulated mast (Fig. 2), which is linked to a mast base (Fig. 2, item 21) rotatable about a vertical axis (Fig. 2, item 13) on a chassis (Fig. 2, item 11), the articulated mast having one end connected to the mast base with the other end being a free end ending in a mast tip (Fig. 2, item 33), the large manipulator comprising

at least three mast arms (Fig 2, items 23-27) limitedly pivotable about respectively parallel horizontal articulation axis relative to the mast base or an adjacent mast arm (Fig 2, items 23-27) via a respective drive unit (Fig. 3, items 34-38),

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a control unit for actuating the drive units for mast movement, the control unit including a coordinate transformer that responds to guiding parameters for the mast tip or for an end hose located thereon, and to measured angular values that are determined by means of angle sensors on the mast arm for translation into articulation axis referenced movement signals for the drive units in accordance with predefined path/slew characteristics (Col. 4, lines 28-55),

wherein a geodetic angle sensor which determine earth referenced angular values of the individual mast arms is disposed in a rigid manner on the mast arms (Col. 5, lines 27-45) and

wherein the coordinate transformer is acted upon by the measured angular values of the geodetic angle sensors (Col. 5, lines 27-45).

Rau fails to disclose more than one sensor.

However, it would have been obvious one having ordinary skill in the art at the time of invention to modify Rau to take the sensor it discloses on a mast arm and place the same sensor on another mast arm since it has been held that the mere duplication of the essential working parts of a device (*Regis Paper Co. v. Bemis Co.*, 193 USPQ 8) and the rearranging of parts of an invention (*In re Japikse*, 86 USPQ 70) involves only routine skill in the art.

Rau also fails to disclose, but Kleffner does disclose wherein one GPS-module is rigidly provided on each mast arm for determining the geographically referenced position measurement value of the individual mast arms, and wherein the coordinate

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transformer is acted upon by the position measurement values of the GPS module (Fig. 1, [0040]).

Therefore, it would have been obvious to one having ordinary skill at the time of the invention to combine the manipulator as disclosed by Rau and Zhou with a GPS device rigidly disposed on the mast arm as disclosed by Kleffner in order to avoid problems associated with knowing the position of the mast arm.

Regarding claim 34, see claim 22 above.

Regarding claim 37, see claim 26 above.

9. Claims 35 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rau (6,883,532) in view of Kleffner (2001/0045032), and further in view of Zhou et al. (6,341,665 B1).

Regarding claim 35 and 36, Rau and Kleffner fail to disclose, but Zhou et al. discloses wherein in addition a geodetic angle sensor is provided on the mast base for measurement of an earth referenced angle value associated with the mast base and chassis respectively (Col. 6, lines 29-41) in order to stabilize the position of the boom tip (Col. 1, lines 25-52).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to modify the articulated mast system as disclosed by Rau and Kleffner by adding a sensor on the mast base and chassis in order to stabilize the position of the boom tip (Zhou et al.; Col. 1, lines 25-52).

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10. Claims 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rau (6,883,532) in view of Kleffner (2001/0045032), and further in view of Katsusuke (5,363,304).

Regarding claim 38, Neither Rau nor Kleffner disclose, but Katsusuke discloses wherein the coordinate transformer includes a software routine (Fig. 1) for conversion of the guide or command value into guide articulation angles in accordance with a predetermined path/slew characteristic of the articulated mast (Col. 3, lines 5-60) in order to provide an efficient and non-cumbersome way of controlling a mast with multiple degrees of freedom (Col. 1, lines 55-60).

Therefore it would have been obvious to combine the articulated mass system as disclosed by Rau and Kleffner to include the software routine as disclosed by Katsusuke in order to provide an efficient and non-cumbersome way of controlling a mast with multiple degrees of freedom (Col. 1, lines 55-60).

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not

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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NIKHIL SRIRAMAN whose telephone number is (571)270-5797. The examiner can normally be reached on Monday through Friday, 7:30am-5:00pm, with every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Khoi Tran can be reached on 571-272-6919. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Examiner
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